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GRAPHITE, OTHER IMPORTANT MINERALS NOTED
IN IL'YEN STATE FOREST IMENI V. I. LENIN

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The area covered by Ilmen State Forest is noted for its complex geological structure, for its diverse strata with interesting and unusual combinations. Magmatic and metamorphic rocks are mainly found in this region. They can be divided along general lines into the following groups: (1) micaceous and numerous rocks generally connected with them; (2) granite and gneissic granite with subordinate seams of metamorphic rock; (3) syenite rocks, also distinguished by a great diversity; and (4) pegmatite. Small masses of peculiar dark rocks (basic and ultrabasic) which are interesting in the number of heavy metals included in them are also found in some rocks of this region.

The extraction of these minerals is carried out by means of small workings having the appearance of shallow mines or pits. These mines are concentrated in the southern part of the State Forest and are of great interest from the standpoint of representative layers and mineral outcrops. About 200 of these mineral mines are known at present to be in the territory of the State Forest. Marvelous mineralogical material -- for both scientific and instructional purposes -- can be collected from these mines.

Niascite Mass

Miascite is located in the central district of the Il'men Range and is concentrated mainly in the southwestern part of the State Forest, in its highest mountain regions. Miascite of the Il'men Mountains is rich with diverse veins, representing a special form of nephelitic feldspar pegmatite.

Calcite and apatite, as well as fluor spar, are also found in the veins of the mass. A mineral very characteristic of the Il'men Mountains is ilmenite.

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Ilmenite has enormous industrial significance. Large concentrations of ilmenite are known to be located in Zavel'yevy Canyon. Ilmenite found there is in peculiar spherical forms of various sizes and weights, some weighing 60 kilograms or more.

Gneissic and Alkaline Syenite

These rocks are found midway between the miascite and the gneissic granite. They border the miascite mass by unbroken bands, separating it from the gneissic granite. A significant portion of these rocks is clearly characterized by a marked schistosity and by a banded arrangement of the minerals contained in these rocks. The rocks are composed of such minerals as hornblende, syenite, biotite, and aegirite-augite. The most interesting group of minerals is situated not far from the base of the State Forest, along the Miassovo road, beyond the bridge over the Large Cheremshanka River. A large deposit of hornblende is situated in the Cheremshanka River region, along the same road to Lake Miassovo.

A few miles north of the hornblende, also on the right side of the road, we come across the mining of graphite. This mineral has been known to be here since 1828, and is interesting not only from the practical standpoint but from the purely mineralogical as well. The graphite found in this deposit is a peculiar form of spherulites (pellets) with a divergent structure. These are enclosed in feldspar or sometimes in quartz.

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